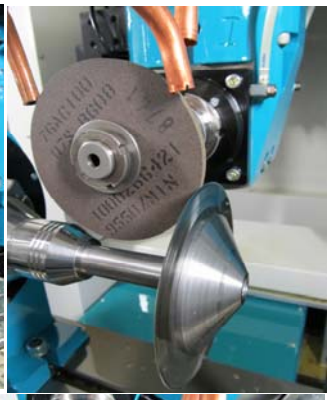
Circular Paper-Knife Ø110

A24-100



The Corundum-Wheel is dressed on a CVD-Needle Insert before grinding the 15º cutting edge on both sides in two passes. The accessability for grinding the blade in one clamping lead to insufficient support expressed in burrgeneration on the cutting edge. Therefore a truing operation on top is executed to eliminate the burr. The 4 degree sides are then ground. For each knife the wheel is dressed, each blade is ground under equal conditions and allows to maintain constant dimensions of the blades. All the operatons consist of oscillations of the wheel at 500 mm/Min while the tool is rotating at 150 rpm. To reduce burr creation on the cutting edge due to pressure, the wheels position is perpendicular. Where for the 4º chamfer the wheel is tangential: surfacefinish is much better, but more pressure is generated.

1. Cycletime for Production

Workpiece: Ø111 mm, T=1.67 mm, 15º and 4º chamfers, Dress on single point PCD Material HSS								
Operations	Dress	15º right 1	15º left 1	15º right 2	15º left 2	Top	4º right	4º left
Feed [mm/Min]	100	500	500	500	500	500	500	500
Power [kW]	1	4	3	2	2	2	3	2
Cutting feed [m/s]	24	32	32	32	32	55	50	50
Used wheels	1	1	1	1	1	1	1	1
Grinding time [s]	19	71	71	61	61	81	81	81
Total cycle time	8 Min 43							

The cycle times are indicative. Material to be ground, grinding wheels, coolants can influence the cycle times considerably.

2. Used Grinding Wheels

1	1A1 Ø100 SG100

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3. Machine and Software Requirements

Machines:	5 axes CNC grinders : NORMA CFG	Coolant:	Synthetic Oil, pressure 6 bar
Control:	Fanuc 31i	Software:	Quinto 5
Accessories:	A-Rapid, Point Dresser		

Responsable engineer: OP, 27.5.11

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